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theory and its application have been presented in greater detail. The new hypothesis is in line with the motor tendency which has been forcing its way to the front in the literature of the past decade. Moreover, it permits an easy envisagement of the physiological processes which are held to be the substrate of mental phenomena. It is, however, based upon a purely hypothetical physiology; its ultimate triumph over other hypothesis of recent origin can only result from its ability to give a more adequate account of the facts of the mental life.

This book should be in the hands of every psychologist. The range of topics treated is wide, the argument is closely articulated and the mode of treatment is original in the extreme. Professor Münsterberg brings to bear upon his work a rare genius for keen and exhaustive analysis. His thorough grasp of details is no less remarkable than his power of systematic generalization. The questions which he discusses have in the main an epistemological bearing, and it is entirely disputable whether his conclusions will be accepted by any large number of his colleagues either in philosophy or in psychology. But quite apart from its more positive and direct contribution to psychological theory, the *Grundzüge* does a valuable service in its searching and systematic criticism of the foundations of the science. Even if not a single position advocated by the author be accepted, their very advocacy and refutation will tend to such a clearing up of ideas as is sorely needed in the science.

J. W. BAIRD.

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*Why the Mind has a Body*, by C. A. STRONG. The Macmillan Co., 1903, pp. vii, 355.

The title of Professor Strong's book may be interpreted as a twofold promise; first, that the reader is to be given final reasons and not merely empirical formulas and, secondly, that the outcome is to be some form of idealistic doctrine. Both parts of the implicit promise are fulfilled; for, in solving the problem of the relation of consciousness to the physical world, the author rests his case on nothing less than the final nature of things and the final nature of things turns out to be mental. The application of this idealistic doctrine to the problem of psychophysical relationships may be anticipated in a few words.

Reality includes individual minds and other mental 'things-in-themselves.' Now it is inherent in the nature of reality that it should symbolize or represent itself, its symbols or representations being the phenomenal world of perception. Since 'brain-events,' together with their physical antecedents and consequents, belong to the symbolic or phenomenal world and 'mental-events' to the real world, it follows that bodily and mental processes can never meet on the same plane; the current terms 'parallelism' and 'interactionism' do not, therefore, properly represent the relation which they aim to express. The relation is rather one of symbol to thing symbolized, of appearance to reality. The metaphysical conception underlying this doctrine of relationship Professor Strong names Psychophysical Idealism.

The general argument of the book runs as follows. Three typical theories of the mutual relations of mind and body are in the field: the theory of automatism, the theory of interaction, and the theory of parallelism. Each theory—or better each group of theories, since each has various shades of meaning—has its positive arguments and against each strong objections, both formal and material, may be urged. The facts of experience are ambiguous; that is to say, they do not compel an acceptance of any one of the three theories to the exclusion of the other two. Interaction is not susceptible of proof because the causal efficacy of consciousness cannot be directly established; automatism is

illogical because it takes account of those facts only which are adapted to the support of a one-sided causal connection—from body to mind; parallelism, finally, which denies all causal connection between cerebral and mental processes, breaks upon certain facts of biological development that suggests an inherent 'survival value' in consciousness. Even were it possible to settle the elusive relation by appeal to empirical facts, the deeper question, 'why mind and body are related at all,' would remain. "Under these circumstances, the time seems to have arrived for the metaphysical enquiry announced at the beginning. . . . We have discussed the relation of mind and matter without knowing exactly what mind and matter are. We must now turn critically upon the conceptions that have answered our purpose thus far, and seek to make them adequate. It may be that an exact knowledge of what mind and matter are will help us to understand their relation." In carrying the question at issue to the higher court of philosophy, the author is careful to explain, first of all, why physical objects must be regarded as, at bottom, 'modifications of consciousness;' why consciousness—not a hypothetical 'soul' or 'subject,' but immediate experience—is a reality; and why the physical world and consciousness, as thus interpreted, give, together, a fragmentary universe which must be filled in by other, 'extra-mental,' realities; in brief, why 'phenomenalism,' as a philosophical creed, is inadequate.

Professor Strong now approaches the crucial point of his argument. To escape the failure of phenomenalism, he posits the existence of 'things-in-themselves'—"realities external to consciousness of which our perceptions are the symbols." After giving his attention to the historical arguments against 'things-in-themselves,' the author brings three 'positive proofs' of their existence; one proof from the necessity of a 'real' medium between mind and mind, another from the necessary conditions of consciousness, and a third from the origin of mind out of antecedent reality. But not alone the *necessity* for things-in-themselves is shown: we are given, also, a hint as to their *nature*." Since consciousness is "our only sample of what reality is like," and since minds must originate in a real thing of their own nature, we may conclude that the extra-mental reality known as things-in-themselves is itself mental.

Having completed the metaphysical deduction of reality and of its relation to the world of sense, the argument reverts to theories of psychophysical relations and considers them in their philosophical implications. In the practical application of his principles, the author has only to show that the thing-in-itself which is symbolized by the cerebral event is *identical with* the corresponding consciousness and his theory of psychophysical idealism is complete. Instead of the traditional brain-and-mind puzzle he has a single reality, accompanied by a symbolic expression, the physiological event. I say he 'has only to show'—as if the task were easy; but it really involves one of the subtlest bits of argumentation in the book.

To give anything like an adequate conception of the work before us would require much more than a running comment on the drift of the argument. At every step, special difficulties are met, counter-arguments are disposed of, rival theories are balanced; but still the logic of the book progresses. It is not easy to overestimate the task that the author has performed. For his fundamental conception, he does not claim originality; but he has done what students of the ultimate psychophysical problem are likely to consider of greater worth than a new theory of the universe: he has disentangled the facts of the case, weighed them, and brought them into immediate and logical relation to philosophical conceptions of the world. The result offers a striking

illustration of the fact—on the way, I suspect, to become a truism—that science and philosophy, however diverse their methods and their intentions, have vital interests in common. The book is, in a double sense, timely; a wide interest in the subject exists (witness the large number of monographs and articles in the current literature) and an authoritative and definitive statement of facts and theories was a pressing need.

The reviewer appends a few of the notes and comments that have accumulated in reading the book. (1) The theory of automatism receives, perhaps, both in the empirical and the metaphysical parts, more than its share of attention. It has always been an adventitious growth in psychology. It is, primarily, a makeshift of biologists and does not, in the writer's opinion, deserve to rank with the rival theories of interactionism and parallelism. (2) Professor Strong seems to overestimate the value to psychology of a metaphysical satisfaction of the psychophysical problem. Without for a moment underrating the author's accomplishment, it may be asserted that had an adequate solution been indefinitely postponed, such empirical theories as are now in the field would, nevertheless, be performing in the interim, good psychological service. '*Why* the mind has a body' turns out to be a philosophical problem; but that *some important relation* obtains between consciousness and bodily processes is a hard and well-seasoned matter of fact in science which in no way stands in need of philosophical sanction. If interaction works or parallelism works, the immediate requirements of science are satisfied. A sharp line of distinction must be drawn between what are, in strictness, *psychological* and *psychophysical conceptions* of the relation in question and *philosophical explanations* of the relation. The psychologist, as a psychologist, is never under the necessity of giving a philosophical justification for his working principle—whether it be of concomitance or of causal interaction. I am not sure that he would be wise—so long as his principle worked satisfactorily—to abandon his position were the universe at large to convict him of stubborn insistence on a metaphysical impossibility. I am not sure he might yield for the sake of 'vital common interests!' But the point is that however 'unreal' the world of sense, psychology, together with natural science, *must* descend into that world six days out of the week and *must* take account of it. If brain-events are representations of things-in-themselves they are also—what is much more important to the psychologist—cerebral functions which are bound up with mental processes. In the work-a-day world of science, parallelism helps because it recognizes this fact. It may *simply* recognize it—not even denying interaction—and still be parallelism. Thus it comes about that however strong our allegiance may be to psychophysical idealism, we *must*—just so long as we go down into a phenomenal world to work among 'physical shadows' and 'symbols'—employ terms adequate to the behavior and to the interrelations of 'phenomenal' things and events. (3) Psychophysical idealism, which peoples the real world with conscious things-in-themselves, is curiously like certain 'representation' theories of mind, read backward. The common property of individual minds and other things-in-themselves seems to be the capacity to symbolize, to create for themselves phenomenal 'doubles.' But is it of the essential nature of consciousness to be symbolic? Or is it only of consciousness at a given 'intellectual' level of development? Although Professor Strong attempts to make his type of idealism the idealism of 'feeling,' I am not sure but that it is, really, the idealism of 'perception,' whose "fundamental maxim is '*esse-percipi.*'" Were we to take "as our sample the consciousness of an earthworm or a polyp"

—as the author allows us to do—it is possible that things-in-themselves would wear a different aspect. (4) The theory of extra-mental realities proves to be superfluous for the immediate satisfaction of parallelistic doctrine; for the *individual mind* is the only real side of brain-events and brain events are the only fragments of the physical world that parallelism is concerned with. All other realities remain as a kind of adhesive medium whose difficult function it is to prevent a pluralism of individual minds. (5) If the reviewer has not missed the author's meaning, the theory of psychophysical idealism parallels reality—in so far as reality is individual mind—with two, not one, phenomenal 'symbols.' For the physical object, since it is a 'modification of consciousness,' must be a symbolic, phenomenal modification of that consciousness; but that same consciousness is already represented symbolically by its brain-event. Another difficulty arises: the physical object represents not only consciousness but also the real thing-in-itself for which it appears. We have, then, one reality (consciousness) with two symbols and one symbol (physical object) with two realities. The obvious way out is solipsism; *i.e.*, the thing-in-itself is identical with the individual consciousness. Even this solution is not highly satisfactory, for it leaves us with the paradox: reality as individual consciousness is paralleled by object of perception, as thing-in-itself by brain-event—whereas it ought to come out just the other way round. Then, too, solipsism brings back the old difficulty of pluralism. (6) In the latter discussion of parallelistic theories, Fechner's name is conspicuous for its absence,—though his historical importance is acknowledged in the preface,—and Wundt's theory of 'actuality' should have had at least a paragraph. This criticism might, indeed, be made more general; for references to the current literature are almost entirely wanting. The reviewer would consider this omission serious where the book is to be placed in the hands of students. The author has recently (*Psych. Rev.* XI, No. 1, p. 67) supplied a partial list of references.

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I. MADISON BENTLEY.

*Die reproduzierende Vorstellung beim Wiedererkennen und beim Vergleichen.* E. A. MCC. GAMBLE AND M. W. CALKINS. *Zeitschrift für Psych. u. Physiol. der Sinnesorgane*, XXXII, pp. 177-199; and XXXIII, pp. 161-170.

This paper states the results of an experimental investigation of the theory of Lehmann, that recognition consists in the image, or series of images, associated with the experience which is felt to be familiar. The introduction contrasts the doctrine of Lehmann (1) with the theories by which recognition is, or includes, a complex of affectively toned organic sensations, and (2) with the doctrine that the essential feature of recognition is an unsensational and unaffectionate content of consciousness—a certain distinctive "feeling of familiarity."

The experiments fall into two groups, each suggested by tests made by Lehmann himself. The first set of experiments furnishes data for a statistical analysis of recognition. The subject was given a series of odors in absolutely uniform bottles, and was required (1) to write down after smelling each odor, the associated images as nearly in their order as possible, (2) to mark with a dash any pause in the train of images, (3) to state in writing whether the smell was familiar or unfamiliar, and (4) to set down its name if known. The average number of odors used was forty-six. The total number of subjects was twenty-four. Of these subjects, twenty-one were undergraduate students and three were teachers of psychology. No subject understood the purpose of the experiment. In stating the results, the